



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We make Indiana a cleaner, healthier place to live.*

Joseph E. Kernan  
Governor

Lori F. Kaplan  
Commissioner

November 20, 3003

100 North Senate Avenue  
P.O. Box 6015  
Indianapolis, Indiana 46206-6015  
(317) 232-8603  
(800) 451-6027  
[www.in.gov/idem](http://www.in.gov/idem)

TO: Interested Parties / Applicant

RE: M & R Wood Finishing / 039-17754-00584

FROM: Paul Dubenetzky  
Chief, Permits Branch  
Office of Air Quality

## Notice of Decision: Approval - Registration

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 4-21.5-3-4(d) this order is effective when it is served. When served by U.S. mail, the order is effective three (3) calendar days from the mailing of this notice pursuant to IC 4-21.5-3-2(e).

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures  
FN-REGIS.dot 9/16/03



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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November 20, 2003

Mr. Maynard Slabaugh  
M & R Wood Finishing  
10980 County Road 32  
Goshen, Indiana 46526

Re: Registered Construction and Operation Status,  
039-17754-00584

Dear Mr. Slabaugh:

The application from M & R Wood Finishing, received on July 30, 2003 has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.1, it has been determined that the following wood surface coating plant, to be located at 60660 County Road 43, Middlebury, Indiana, 46540 is classified as registered:

- (a) Three(3) spray booths (identified as S1, S2 and S3), with a maximum usage rate of 0.63 gallons of coating per hour, using high volume low pressure (HVLP) spray guns, controlled by dry filters and exhausting at stacks ID S1, S2 and S3. These units will be constructed in 2003.
- (b) One (1) no. 2 fuel fired generator, with a maximum heat input capacity of 0.11 MMBtu per hour. This unit will be installed in 2003.
- (c) One (1) wood fired hot water boiler, with a maximum heat input capacity of 0.14 MMBtu per hour. This unit will be installed in 2003.

The following conditions shall be applicable:

- (a) Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following:
  - (1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
  - (2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.



- (b) Pursuant to 326 IAC 8-2-12 (Wood Furniture and Cabinet Coating), the surface coating applied to wood furniture and cabinets shall utilize one of the following application methods:

Airless Spray Application  
Air Assisted Airless Spray Application  
Electrostatic Spray Application  
Electrostatic Bell or Disc Application  
Heated Airless Spray Application  
Roller Coating  
Brush or Wipe Application  
Dip-and-Drain Application

High Volume Low Pressure (HVLP) Spray Application is an accepted alternative method of application for Air Assisted Airless Spray Application. HVLP spray is the technology used to apply coating to substrate by means of coating application equipment which operates between one-tenth (0.1) and ten (10) pounds per square inch gauge (psig) air pressure measured dynamically at the center of the air cap and at the air horns of the spray system.

- (c) Pursuant to 326 IAC 6-3,
- (1) Particulate from the three (3) spray booths shall be controlled by a dry particulate filters, and the Permittee shall operate the control device in accordance with manufacturer's specifications.
  - (2) If overspray is visibly detected at the exhaust or accumulates on the ground, the Permittee shall inspect the control device and do either of the following no later than four (4) hours after such observation:
    - (A) Repair control device so that no overspray is visibly detectable at the exhaust or accumulates on the ground.
    - (B) Operate equipment so that no overspray is visibly detectable at the exhaust or accumulates on the ground.
  - (3) If overspray is visibly detected, the Permittee shall maintain a record of the action taken as a result of the inspection, any repairs of the control device, or change in operations, so that overspray is not visibly detected at the exhaust or accumulates on the ground. These records must be maintained for five (5) years.

The dry particulate filters shall be in operation at all times the three (3) spray booths are in operation in order to comply with this limit.
- (d) Pursuant to 326 6-2-4(a), the PM emissions from the 0.14 MMBtu per hour wood fired hot water boiler, which is constructed after September 21, 1983 shall be limited to 0.6 pounds of particulate matter per MMBtu heat input.

This registration is the first air approval issued to this source. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.1-2(f)(3). The annual notice shall be submitted to:

**Compliance Branch  
Office of Air Quality  
100 North Senate Avenue  
P.O. Box 6015  
Indianapolis, IN 46206-6015**

no later than March 1 of each year, with the annual notice being submitted in the format attached.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Pursuant to Contract No. A305-0-00-36, IDEM, OAQ has assigned the processing of this application to Eastern Research Group, Inc., (ERG). Therefore, questions should be directed to Sanobar Durrani, ERG, 1600 Perimeter Park Drive, Morrisville, North Carolina 27560, or call (919) 468-7810 to speak directly to Ms. Durrani. Questions may also be directed to Duane Van Laningham at IDEM, OAQ, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, or call (800) 451-6027, and ask for Duane Van Laningham, or extension 3-6878, or dial (317) 233-6878.

Sincerely,

Original Signed by Paul Dubenetzky  
Paul Dubenetzky, Chief  
Permits Branch  
Office of Air Quality

ERG/SD

cc: File - Elkhart County  
Elkhart County Health Department  
Air Compliance - Gregg Wingstrom  
Permit Tracking - Sara Cloe  
Technical Support and Modeling - Michele Boner  
Compliance Branch - Karen Nowak

<b>Registration Annual Notification</b>
---

This form should be used to comply with the notification requirements under 326 IAC 2-5.1-2(f)(3)

<b>Company Name:</b>	<b>M &amp; R Wood Finishing</b>
<b>Address:</b>	<b>60660 County Road 43</b>
<b>City:</b>	<b>Middlebury, Indiana 46540</b>
<b>Authorized individual:</b>	<b>Maynard Slabaugh</b>
<b>Phone #:</b>	<b>574-642-1183</b>
<b>Registration #:</b>	<b>039-17754-00584</b>

I hereby certify that M & R Wood Finishing is still in operation and is in compliance with the requirements of Registration 039-17754-00584.

<b>Name (typed):</b>
<b>Title:</b>
<b>Signature:</b>
<b>Date:</b>

## **Indiana Department of Environmental Management Office of Air Quality**

### **Technical Support Document (TSD) for a Registration**

#### **Source Background and Description**

Source Name: M & R Wood Finishing  
Source Location: 60660 County Road 43, Middlebury, Indiana 46540  
County: Elkhart  
SIC Code: 2439  
Operation Permit No.: 039-17754-00584  
Permit Reviewer: ERG/SD

The Office of Air Quality (OAQ) has reviewed an application from M & R Wood Finishing relating to the operation of a wood surface coating plant.

#### **Permitted Emission Units and Pollution Control Equipment**

The source will relocate from 10980 County Road 32, Goshen, Indiana to 60660 County Road 43, Middlebury, Indiana. This relocation will involve the new construction of a residential structure, barn, and a wood finishing building upon vacant land. Therefore, the emission units previously permitted under Registration No. :039-4966-00356 are considered new and are listed under New Emissions Unit and Pollution Control Equipment Receiving Prior Approval.

#### **Unpermitted Emission Units and Pollution Control Equipment**

There are no unpermitted facilities operating at this source during this review process.

#### **New Emission Units and Pollution Control Equipment Receiving Prior Approval**

- (a) Three (3) spray booths (identified as S1, S2 and S3), with a maximum usage rate of 0.63 gallons of coating per hour, using high volume low pressure (HVLP) spray guns, controlled by dry filters and exhausting at stacks ID S1, S2 and S3. These units will be constructed in 2003.
- (b) One (1) No. 2 fuel fired generator, with a maximum heat input capacity of 0.11 MMBtu per hour. This unit will be installed in 2003.
- (c) One (1) wood fired hot water boiler, with a maximum heat input capacity of 0.14 MMBtu per hour. This unit will be installed in 2003.

#### **Existing Approvals**

The source has been operating under previous approvals including, but not limited to, the following:

- (a) R039-4966-00356, issued November 21, 1995.

### Enforcement Issue

There are no enforcement actions pending.

### Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
S1A	Spray Booth	18	18	3500	Ambient
S1B	Spray Booth	18	18	3500	Ambient
S2	Spray Booth	18	18	3500	Ambient
S3	Spray Booth	18	18	3500	Ambient
D1	Diesel Generator	15	4	750	Ambient
B1	Wood Fired Hot Water Boiler	18	6	1250	Ambient

### Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on July 30, 2003.

### Emission Calculations

See Appendix A of this document for detailed emissions calculations (Pages 1 through 7).

### Potential To Emit of Source Before Controls

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential To Emit (tons/year)
PM	2.09
PM10	2.07
SO <sub>2</sub>	0.27
VOC	15.2
CO	0.38
NO <sub>x</sub>	0.20

HAPs	Potential To Emit (tons/year)
n-Butylalcohol	1.53
Formaldehyde	0.08
Methanol	0.08
Xylene	1.41
Methylbenzene	0.20

HAPs	Potential To Emit (tons/year)
Toluene	2.43
Ethylbenzene	0.17
Proponal	0.09
Total	5.99

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of criteria pollutants is less than 100 tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.
- (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of all criteria pollutants is less than 25 tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-6.1.
- (c) The potential to emit (as defined in 326 IAC 2-7-1(29)) of pollutants is greater than levels listed in 326 IAC 2-1.1-3(d)(1), therefore the source is subject to the provisions of 326 IAC 2-5.5.1. A Registration will be issued.
- (d) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is not subject to the provisions of 326 IAC 2-7.
- (e) Fugitive Emissions  
Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

### County Attainment Status

The source is located in Elkhart County.

Pollutant	Status
PM10	Attainment
SO <sub>2</sub>	Attainment
NO <sub>2</sub>	Attainment
Ozone	Maintenance
CO	Attainment
Lead	Attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Elkhart County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (b) Elkhart County has been classified as attainment or unclassifiable for all criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.
- (c) Fugitive Emissions  
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2 or 326 IAC 2-3 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.



### Source Status

New Source PSD, Part 70 or FESOP Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/year)
PM	2.09
PM10	2.07
SO <sub>2</sub>	0.27
VOC	15.2
CO	0.38
NO <sub>x</sub>	0.20
Single HAP (Toluene)	2.43
Combination HAPs	5.99

- (a) This new source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2 the PSD requirements do not apply.

### Part 70 Permit Determination

#### 326 IAC 2-7 (Part 70 Permit Program)

This new source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons/year.

This status is based on the potential to emit calculations (see Appendix A).

### Federal Rule Applicability

- (a) Although the wood fired hot water boiler will be constructed after June 9, 1989, this boiler is not subject to the New Source Performance Standard (NSPS), 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (326 IAC 12) because it has a maximum heat input capacity less than 10 MMBtu per hour.

There are no other New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this source.

- (b) This source is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs), 40 CFR 63, Subpart JJ (326 IAC 14) because this source is not a major source of HAPs as defined in 40 CFR 63, Subpart A and does not manufacture wood furniture or wood furniture components.

### State Rule Applicability - Entire Source

#### 326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

M & R Wood Finishing will be constructed in 2003 and is not one (1) of the twenty-eight (28) source categories defined in 326 IAC 2-2-1(p)(1). At the time of construction, which will commence after the issuance of this permit, the potential to emit of each criteria pollutant before

control is less than two hundred and fifty (250) tons per year PSD threshold. Therefore, the source is a minor source under PSD and the requirements of 326 IAC 2-2 are not applicable.

**326 IAC 2-6 (Emission Reporting)**

This source is subject to 326 IAC 2-6 (Emission Reporting) because it has the potential to emit more than ten (10) tons per year of VOC and is located in Elkhart County. Pursuant to this rule, the Permittee must annually submit an emission statement for the source. The annual statement must be received by April 15 of each year and contain the minimum requirement as specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8) Emission Statement Operating Year).

**326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))**

The operation of the wood surface coating plant emits less than ten (10) tons per year of a single HAP and less than twenty-five (25) tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

**326 IAC 5-1 (Opacity Limitations)**

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

**State Rule Applicability - Three (3) Spray Booths**

**326 IAC 8-1-6 (New Facilities - General Reduction Requirement)**

The three (3) spray booths are not subject to the requirements of 326 IAC 8-1-6 because the potential emissions of volatile organic compound (VOC) from the booths is less than twenty-five (25) tons per year and it is subject to 326 IAC 8-2-12. Facilities that are subject to other Article 8 rule, are exempt from the requirements of 326 IAC 8-1-6.

**326 IAC 8-2-12 (Wood Furniture and Cabinet Coating)**

The three (3) spray booths are subject to the provisions of 326 IAC 8-2-12 because the three (3) spray booths have actual emissions greater than fifteen (15) pounds per day and are used for applying coatings to wood furniture components.

Pursuant to 326 IAC 8-2-12 (Wood Furniture and Cabinet Coating), the surface coating applied to wood furniture and cabinets shall utilize one of the following application methods:

- Airless Spray Application
- Air Assisted Airless Spray Application
- Electrostatic Spray Application
- Electrostatic Bell or Disc Application
- Heated Airless Spray Application
- Roller Coating
- Brush or Wipe Application
- Dip-and-Drain Application

High Volume Low Pressure (HVLP) Spray Application is an accepted alternative method of application for Air Assisted Airless Spray Application. HVLP spray is the technology used to apply coating to substrate by means of coating application equipment which operates between one-

tenth (0.1) and ten (10) pounds per square inch gauge (psig) air pressure measured dynamically at the center of the air cap and at the air horns of the spray system.

**326 IAC 6-3 (Particulate Matter Emission Limitations from Manufacturing Processes)**

This source is subject to 326 IAC 6-3 (Particulate Matter Emission Limitations from Manufacturing Processes) because the three (3) spray booths use more than five (5) gallons of coating per day [326 IAC 6-3-1(b)(15)].

Pursuant to 326 IAC 6-3,

- (a) Particulate from the three (3) spray booths shall be controlled by a dry particulate filters, and the Permittee shall operate the control device in accordance with manufacturer's specifications.
- (b) If overspray is visibly detected at the exhaust or accumulates on the ground, the Permittee shall inspect the control device and do either of the following no later than four (4) hours after such observation:
  - (1) Repair control device so that no overspray is visibly detectable at the exhaust or accumulates on the ground.
  - (2) Operate equipment so that no overspray is visibly detectable at the exhaust or accumulates on the ground.
- (c) If overspray is visibly detected, the Permittee shall maintain a record of the action taken as a result of the inspection, any repairs of the control device, or change in operations, so that overspray is not visibly detected at the exhaust or accumulates on the ground. These records must be maintained for five (5) years.

The dry particulate filters shall be in operation at all times the three (3) spray booths are in operation in order to comply with this limit.

**State Rule Applicability - Wood Fired Hot Water Boiler**

**326 IAC 6-2-4 (Particulate Emission Limitations for Source of Indirect Heating)**

Pursuant to 326 6-2-4(a), the PM emissions from the 0.14 MMBtu per hour wood fired hot water boiler, which is constructed after September 21, 1983 shall be limited to:

This limit is based on the following equation:

$$P_t = \frac{1.09}{Q^{0.26}} \quad \text{where} \quad \begin{array}{l} P_t = \text{Emission Rate Limit (lb/MMBtu)} \\ Q = \text{Total source heat input capacity rating in} \\ \text{million Btu per hour (0.14 MMBtu per hour)} \end{array}$$
$$P_t = \frac{1.09}{0.11^{0.26}} = 1.82$$

However, 326 IAC 6-2-4(a) also states that boilers having a total source heat input capacity less than 10 MMBtu per hour shall in no case exceed 0.6 pounds of particulate matter per MMBtu heat input. Since the 0.6 pounds particulate matter per MMBtu emission limit is less than the limit calculated using the above equation, the 0.11 MMBtu per hour wood fired boiler shall be limited to 0.6 pounds of particulate matter per MMBtu heat input.

**State Rule Applicability - Diesel Generator**

There are no specifically applicable regulations that apply to these emission units.

## **Conclusion**

The construction and operation of wood surface coating plant shall be subject to the conditions of the attached proposed Registration 039-17754-00584.

**Appendix A: Emissions Calculations  
One (1) Wood Fired Hot Water Boiler  
(Identified as B1)**

**Company Name:** M & R Wood Finishing

**Address:** 60660 County Road 43, Middlebury, Indiana 46540

**Registration:** 039-17754

**Plt ID:** 039-00584

**Reviewer:** ERG/SD

**Date:** August 29, 2003

Heat Input Capacity (MMBtu/hr)

0.14

	Pollutant					
	PM	PM10	SO2	NOx	VOC	CO
*Emission Factor (lb/MMBtu)	0.33	0.29	0.025	0.22	0.01	0.60
Potential To Emit (tons/year)	0.20	0.17	0.02	0.13	0.01	0.36

\*Emission factors are from AP-42 Chapter 1.6 (Wood Residue Combustion In Boilers), Tables 1.6-1, 1.6-2 and 1.6-3 (March, 2002)

Note: The source burns only wet wood (more than 20% moisture content) in this boiler.

**METHODOLOGY**

PTE (tons/year) = Capacity (MMBtu/hr) \* Emission Factor (lb/MMBtu) \* 8760hours/year \* 1ton/2000 lbs

**Appendix A: Emissions Calculations  
Wood Fired Hot Water Boiler  
(Identified as B1)**

**Company Name:** M & R Wood Finishing

**Address:** 60660 County Road 43, Middlebury, Indiana 46540

**Registration:** 039-17754

**Plt ID:** 039-00584

**Reviewer:** ERG/SD

**Date:** August 29, 2003

	Selected Hazardous Air Pollutants				
	Acrolein	Benzene	Formaldehyde	Hydrogen Chloride	Styrene
Emission Factor (lb/MMBtu)	0.004	0.004	0.004	0.019	0.002
Potential To Emit (tons/year)	2.40E-03	2.52E-03	2.64E-03	1.14E-02	1.14E-03

\* Emission factors are from AP-42, Chapter 1.6 (Wood Residue Combustion Boilers), Table 1.6-1, 1.6-2, and 1.6-3 (March, 2002). These factors include the five (5) HAPs with the highest AP-42 emission factors.

Note: The source burns only wet wood (more than 20 weight % moisture) in this boiler.

**METHODOLOGY**

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PTE (tons/year) = Capacity (MMBtu/hour) \* Emission Factor (lb/MMBtu) \* 8760hour/year \* 1ton/2000lbs

**Appendix A: Emission Calculations  
One (1) Generator Burning No. 2 Fuel Oil**

**Company Name:** M & R Wood Finishing  
**Address:** 60660 County Road 43, Middlebury, Indiana 46540  
**Registration:** 039-17754  
**Plt ID:** 039-00584  
**Reviewer:** ERG/SD  
**Date:** August 29, 2003

Heat Input Capacity  
MMBtu/hour

Potential Throughput  
kgals/year

S = Weight % Sulfur  
0.5

0.11

7.16

**Pollutant**

	<b>PM/PM10*</b>	<b>SO2</b>	<b>NOx</b>	<b>VOC</b>	<b>CO</b>
Emission Factor (lb/kgal)	2.0	71 (142.0 S)	20.0	0.34	5.0
Potential To Emit (tons/year)	0.01	0.25	0.07	0.001	0.02

\*PM emission factor is filterable PM only. Condensable PM emission factor is 1.3 lb/kgal. Assume all PM emissions are equal to PM10.

Note: Emission factors are from AP-42, Tables 1.3-1, 1.3-2, and 1.3-3 ( SCC 1-03-005-01/02/03) Supplement E 9/98.

1 gallon of No. 2 fuel oil has a heating value of 137,000 Btu per gallon.

**METHODOLOGY**

Potential Throughput (kgals/year) = Heat Input Capacity (MMBtu/hr) \* 8760 hours/year \* 1 kgal/1000 gal \* 1 gal/0.137000 MMBtu

Potential To Emit (tons/year) = Potential Throughput (kgals/year) \* Emission Factor (lb/kgal) \* 1 ton/2000 lbs

See next page for HAP emission calculations.

**Appendix A: Emission Calculations  
One (1) Generator Burning No. 2 Fuel Oil**

**Company Name:** M & R Wood Finishing  
**Address:** 60660 County Road 43, Middlebury, Indiana 46540  
**Registration:** 039-17754  
**Plt ID:** 039-00584  
**Reviewer:** ERG/SD  
**Date:** August 29, 2003

**HAPs - Metals**

	<b>Arsenic</b>	<b>Beryllium</b>	<b>Cadmium</b>	<b>Chromium</b>	<b>Lead</b>
Emission Factor (lb/MMBtu)	4.0E-06	3.0E-06	3.0E-06	3.0E-06	9.0E-06
Potential To Emit (tons/year)	2.0E-06	1.5E-06	1.5E-06	1.5E-06	4.4E-06

**HAPs - Metals (continued)**

	<b>Mercury</b>	<b>Mangamese</b>	<b>Nickel</b>	<b>Selenium</b>
Emission Factor (lb/MMBtu)	3.0E-06	6.0E-06	3.0E-06	1.5E-05
Potential To Emit (tons/year)	1.5E-06	2.9E-06	1.5E-06	7.4E-06

No data was available in AP-42 for organic HAPs.

**METHODOLOGY**

Potential To Emit (tons/year) = Heat Input Capacity (MMBtu/hr) \* Emission Factor (lb/MMBtu) \* 8760 hours/year \* 1 ton/2000lb



**Appendix A: Emissions Calculations  
VOC and PM/PM10 Emissions  
From Three (3) Spray Booths**

**Company Name:** M & R Wood Finishing  
**Address:** 60660 County Road 43, Middlebury, Indiana 46540  
**Registration:** 039-17754  
**Pit ID:** 039-00584  
**Reviewer:** ERG/SD  
**Date:** August 29, 2003

Material	Density (lb/gal)	Weight % Volatile (H <sub>2</sub> O & Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non- Volatiles (solids)	Gal of Mat. (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	PTE VOC (lbs/hour)	PTE VOC (lbs/day)	PTE VOC (tons/year)	PTE PM/PM10 (tons/year)	**Transfer Efficiency	PTE PM/PM10 (lbs/hour)
Fruitwood Stain	6.54	98.2%	0.0%	98.2%	0.0%	7.2%	0.0095	17.0	6.42	6.42	1.04	24.9	4.54	0.03	65%	0.01
E29C3016 Sealer	7.65	69.3%	0.0%	69.3%	0.0%	23.9%	0.01	17.0	5.30	5.30	1.21	29	5.29	0.82	65%	0.19
HC 30 Topcoat	7.96	62.7%	0.0%	62.7%	0.0%	29.5%	0.01	17.0	4.99	4.99	1.14	27	4.98	1.04	65%	0.24
Blender 2739	7.02	100%	0.0%	100%	0.0%	0.0%	0.0007	17.0	7.02	7.02	0.08	2.00	0.37	0.00	100%	0.00

<b>TOTAL</b>	<b>3.46</b>	<b>83.2</b>	<b>15.2</b>	<b>1.89</b>	<b>0.43</b>
<b>Actual Emission (lbs/day) =</b>	<b>27.7</b>				

\*\* Coating applied using HVLP guns

**METHODOLOGY**

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) \* Weight % Organics) / (1-Volume % water)

Pounds of VOC per Gallon Coating = (Density (lb/gal) \* Weight % Organics)

PTE VOC (pounds/hour) = Pounds of VOC/Gallon coating (lb/gal) \* Gal of Material (gal/unit) \* Maximum (units/hr)

PTE VOC (pounds/day) = Pounds of VOC/Gallon coating (lb/gal) \* Gal of Material (gal/unit) \* Maximum (units/hr) \* (24 hr/day)

PTE VOC (tons/year) = Pounds of VOC per Gallon coating (lb/gal) \* Gal of Material (gal/unit) \* Maximum (units/hr) \* (8760 hr/yr) \* (1 ton/2000 lbs)

PTE PM/PM10 (tons/year) = Max. (units/hour) \* Gal of Mat (gal/unit) \* Density (lbs/gal) \* (1- Weight % Volatile) \* (1-Transfer efficiency) \*8760 hours/year \*1ton/2000 lbs

PTE PM/PM10 (lbs/hour) = Max. (units/hour) \* Gal of Mat (gal/unit) \* Density (lbs/gal) \* (1- Weight % Volatile) \* (1-Transfer efficiency)

Actual Emissions of VOC (lbs/day) = PTE of VOC (lbs/hour) \* Actual Hours of Operation (2000 hours/year) \* Actual Days of Operation (250 days/year)

**Appendix A: Emissions Calculations**  
**HAP Emissions**  
**From Three (3) Spray Booths**

**Company Name:** M & R Wood Finishing  
**Address:** 60660 County Road 43, Middlebury, Indiana 46540  
**Registration:** 039-17754  
**Plt ID:** 039-00584  
**Reviewer:** ERG/SD  
**Date:** August 29, 2003

Material	Density (lb/gal)	Gal of Mat. (gal/unit)	Maximum (unit/hour)	Weight % n-Butyl Alcohol	Weight % Formaldehyde	Weight % Methanol	Weight % Xylene	Weight % MethylBenzene	Weight % Toluene	Weight % Ethylbenzene	Weight % Propanol	n-Butyl Alcohol	Formaldehyde	Methanol	Xylene	Methylbenzene	Toluene	Ethylbenzene	Propanol
Fruitwood Stain E29C3016 Sealer HC 30 Topcoat Blender 2739	6.54	0.0095	17.00									0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	7.65	0.01	17.00	20.0%	0.05%	1.00%	8.11%		11%	1.22%		1.53	0.00	0.08	0.62	0.00	0.84	0.09	0.00
	7.96	0.01	17.00		1.00%		10.0%		20%	1.00%		0.00	0.08	0.00	0.79	0.00	1.59	0.08	0.00
	7.02	0.0007	17.00					55%			25%	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.09
<b>TOTAL</b>												<b>1.53</b>	<b>0.08</b>	<b>0.08</b>	<b>1.41</b>	<b>0.20</b>	<b>2.43</b>	<b>0.17</b>	<b>0.09</b>

**Highest Single HAP (Toluene): 2.43**  
**Total HAPs: 5.99**

**METHODOLOGY**

PTE HAPs (tons/year) = Density (lb/gal) \* Gal of Mat. (gal/unit) \* Maximum (unit/hour) \* Weight % HAP \* 8760 hours/year \* 1 ton/2000 lbs

**Appendix A: Emissions Calculations  
Summary Emissions**

**Company Name:** M & R Wood Finishing

**Address:** 60660 County Road 43, Middlebury, Indiana 46540

**Registration:** 039-17754

**Plt ID:** 039-00584

**Reviewer:** ERG/SD

**Date:** August 29, 2003

**POTENTIAL TO EMIT IN TONS PER YEAR**

Emission Units	PM	PM10	SO <sub>2</sub>	NOx	VOC	CO	* Highest Single HAP	Combined HAP
Wood Fired Boiler	0.20	0.17	0.02	0.13	0.01	0.36		
Diesel Generator	0.01	0.01	0.25	0.07	0.00	0.02		
3 Surface Coating Booths	1.89	1.89			15.2		2.43	5.99
<b>TOTAL</b>	2.09	2.07	0.27	0.20	15.2	0.38	2.43	5.99

\* Toluene